We claim:

1. A method for multi-language compilation comprising:

discovering a first compiler component which implements a prespecified protocol and provides compilation of code in a first language;

discovering a second compiler component which implements said prespecified protocol and provides compilation of code in a second language; and

providing a first framework which uses said first compiler component and said second compiler component to provide multi-language compilation.

2. The method of claim 1, further comprising:

discovering a third compiler component which implements said prespecified protocol; and

providing a second framework which integrates said first, second, and third compiler components to provide multi-language compilation.

3. The method of claim 1, where said prespecified protocol comprises a discoverability interface, and where said discovering a first compiler component which implements a prespecified protocol occurs using said discoverability interface implemented in said first compiler component, and said discovering a second compiler component which implements said prespecified protocol using said discoverability interface implemented in said second compiler component.

4. The method of claim 1, where said prespecified protocol comprises a compilation time interface, and where said provision of multi-language compilation occurs using said compilation time interface implemented in said first compiler component, and said compilation time interface implemented in said second compiler component.

5. The method of claim 4, where said compilation time interface comprises a normalized referencing scheme describing how code in other languages references code compiled by a compiler implementing said normalized referencing scheme.

6. The method of claim 4, where said compilation time interface comprises data regarding how dependency trees are to be built.

7. The method of claim 4, where said compilation time interface comprises data regarding the order of compilation of different languages in which code to be compiled has been written.

8. The method of claim 1, where said prespecified protocol comprises a debugging interface, and where said first framework further provides multi-language debugging according to information from said debugging interface.

9. The method of claim 1, where said prespecified protocol comprises an error interface, and where said first framework further provides multi-language error handling according to information from said error interface.

10. The method of claim 1, where said first framework further provides a multi-language design tool for designing code comprising code portions in said first language and code portions in said second language.

11. The method of claim 10, where said prespecified protocol comprises a design time interface, and where said multi-language design tool uses said design time interface corresponding to a compiler for a given language to control designing of code in said given language.

12. The method of claim 10, where said prespecified protocol comprises a background compilation time interface, and where said multi-language design tool uses background compilation time interface corresponding to a compiler for a given language to control background compilation functionality for code in said given language.

13. A method for multi-language code editing comprising:

discovering a first design tool which implements a prespecified protocol and provides design assistance for code in a first language;

discovering a second design tool which implements a prespecified protocol and provides design assistance for code in a second language; and

providing a framework which integrates said first design tool and said second design tool to provide multi-language editing.

14. A method for multi-language code editing comprising:

discovering a first compiler component which implements a prespecified protocol and provides compilation of code in a first language;

discovering a second compiler component which implements said prespecified protocol and provides compilation of code in a second language;

discovering a first design tool which implements a prespecified protocol and provides design assistance for code in said first language;

discovering a second design tool which implements a prespecified protocol and provides design assistance for code in said second language; and

providing a framework which integrates said first compiler component, said second compiler component, said first design tool, and said second design tool to provide multi-language design functionality assisting a user in writing code comprising inter-language reference requirements.

15. A method for multi-language code editing comprising:

discovering a first compiler component which implements a prespecified protocol and provides compilation of code in a first language;

discovering a second compiler component which implements said prespecified protocol and provides compilation of code in a second language;

discovering a first design tool which implements a prespecified protocol and provides design assistance for code in said first language;

discovering a second design tool which implements a prespecified protocol and provides design assistance for code in said second language; and

providing a framework which integrates said first compiler component, said second compiler component, said first design tool, and said second design tool to provide multi-language design functionality incorporating background compilation.

16. A method for multi-language compilation comprising:

discovering at least two compiler components which each implement a prespecified protocol; and

providing a framework which integrates each of said at least two compiler components to provide multi-language compilation.

17. The method of claim 16, where said discovery of components is facilitated using a COM-style protocol.

18. The method of claim 16, where said multi-language compilation comprises multi-language compilation to a target platform specified by at compilation time.

19. A computer-readable medium for multi-language compilation comprising computer executable modules having computer executable instructions, said instructions comprising instructions for:

discovering a first compiler component which implements a prespecified protocol and provides compilation of code in a first language;

discovering a second compiler component which implements said prespecified protocol and provides compilation of code in a second language; and

providing a first framework which uses said first compiler component and said second compiler component to provide multi-language compilation.

20. The computer-readable medium of claim 19, said instructions further comprising:

discovering a third compiler component which implements said prespecified protocol; and

providing a second framework which integrates said first, second, and third compiler components to provide multi-language compilation.

21. The computer-readable medium of claim 19, where said prespecified protocol comprises a discoverability interface, and where said discovering a first compiler component which implements a prespecified protocol occurs using said discoverability interface implemented in said first compiler component, and said discovering a second compiler component which implements said prespecified protocol using said discoverability interface implemented in said second compiler component.

22. The computer-readable medium of claim 19, where said prespecified protocol comprises a compilation time interface, and where said provision of multi-language compilation occurs using said compilation time interface implemented in said first compiler component, and said compilation time interface implemented in said second compiler component.

23. The computer-readable medium of claim 22, where said compilation time interface comprises a normalized referencing scheme describing how code in other languages references code compiled by a compiler implementing said normalized referencing scheme.

24. The computer-readable medium of claim 22, where said compilation time interface comprises data regarding how dependency trees are to be built.

25. The computer-readable medium of claim 22, where said compilation time interface comprises data regarding the order of compilation of different languages in which code to be compiled has been written.

26. The computer-readable medium of claim 19, where said prespecified protocol comprises a debugging interface, and where said first framework further provides multi-language debugging according to information from said debugging interface.

27. The computer-readable medium of claim 19, where said prespecified protocol comprises an error interface, and where said first framework further provides multi-language error handling according to information from said error interface.

28. The computer-readable medium of claim 19, where said first framework further provides a multi-language design tool for designing code comprising code portions in said first language and code portions in said second language.

29. The computer-readable medium of claim 28, where said prespecified protocol comprises a design time interface, and where said multi-language design tool uses said design time interface corresponding to a compiler for a given language to control designing of code in said given language.

30. The computer-readable medium of claim 28, where said prespecified protocol comprises a background compilation time interface, and where said multi-language design tool uses background compilation time interface corresponding to a compiler for a given language to control background

compilation functionality for code in said given language.

31. A computer-readable medium for multi-language code editing comprising computer executable modules having computer executable instructions, said instructions comprising instructions for:

discovering a first design tool which implements a prespecified protocol and provides design assistance for code in a first language;

discovering a second design tool which implements a prespecified protocol and provides design assistance for code in a second language; and

providing a framework which integrates said first design tool and said second design tool to provide multi-language editing.

32. A computer-readable medium for multi-language code editing comprising computer executable modules having computer executable instructions, said instructions comprising instructions for:

discovering a first compiler component which implements a prespecified protocol and provides compilation of code in a first language;

discovering a second compiler component which implements said prespecified protocol and provides compilation of code in a second language;

discovering a first design tool which implements a prespecified protocol and provides design assistance for code in said first language;

discovering a second design tool which implements a prespecified protocol and provides design assistance for code in said second language; and

providing a framework which integrates said first compiler component, said second compiler component, said first design tool, and said second design tool to provide multi-language design functionality assisting a user in writing code comprising inter-language reference requirements.

33. A computer-readable medium for multi-language code editing comprising computer executable modules having computer executable instructions, said instructions comprising instructions for:

discovering a first compiler component which implements a prespecified protocol and provides compilation of code in a first language;

discovering a second compiler component which implements said prespecified protocol and provides compilation of code in a second language;

discovering a first design tool which implements a prespecified protocol and provides design assistance for code in said first language;

discovering a second design tool which implements a prespecified protocol and provides design assistance for code in said second language; and

providing a framework which integrates said first compiler component, said second compiler component, said first design tool, and said second design tool to provide multi-language design functionality incorporating background compilation.

34. A computer-readable medium for multi-language code compilation comprising computer executable modules having computer executable instructions, said instructions comprising instructions for:

discovering at least two compiler components which each implement a prespecified protocol; and

providing a framework which integrates each of said at least two compiler components to provide multi-language compilation.

35. The computer-readable medium of claim 34, where said discovery of components is facilitated using a COM-style protocol.

36. The computer-readable medium of claim 34, where said multi-language compilation comprises multi-language compilation to a target platform specified by at compilation time.

37. A system for multi-language compilation comprising:

a first compiler component which implements a prespecified protocol and provides compilation of code in a first language;

a second compiler component which implements said prespecified protocol and provides compilation of code in a second language; and

a first framework which uses said first compiler component and said second compiler component to provide multi-language compilation.

38. The system of claim 37, where said first framework further discovers a third compiler component which implements said prespecified protocol, comprising:

said third compiler component which implements said prespecified protocol and provides compilation of code in a third language.

39. A system for multi-language code editing comprising:

a first design tool which implements a prespecified protocol and provides design assistance for code in a first language;

a second design tool which implements a prespecified protocol and provides design assistance for code in a second language; and

a framework which integrates said first design tool and said second design tool to provide multi-language editing.

40. A system for multi-language code editing comprising:

a first compiler component which implements a prespecified protocol and provides compilation of code in a first language;

a second compiler component which implements said prespecified protocol and provides compilation of code in a second language;

a first design tool which implements a prespecified protocol and provides design assistance for code in said first language;

a second design tool which implements a prespecified protocol and provides design assistance for code in said second language; and

a framework which integrates said first compiler component, said second compiler component, said first design tool, and said second design tool to provide multi-language design functionality assisting a user in writing code comprising inter-language reference requirements.

41. A system for multi-language code editing comprising:

a first compiler component which implements a prespecified protocol and provides compilation of code in a first language;

a second compiler component which implements said prespecified protocol and provides compilation of code in a second language;

a first design tool which implements a prespecified protocol and provides design assistance for code in said first language;

a second design tool which implements a prespecified protocol and provides design assistance for code in said second language; and

a framework which integrates said first compiler component, said second compiler component, said first design tool, and said second design tool to provide multi-language design functionality incorporating background compilation.

42. A system for multi-language compilation comprising:

at least two compiler components which each implement a prespecified protocol; and

a first framework which integrates each of said at least two compiler components to provide multi-language compilation.

43. A system for multi-language compilation comprising:

a compiler discovery component which discovers at least two protocol-compliant compiler components; and

a compiler integration component which integrates each of said compiler components to provide multi-language compilation functionality.

44. The system of claim 43, where said system further comprises:

a design tool discovery component which discovers at least two protocol-compliant design tool components; and

a design tool integration component which integrates each of said design tool components to provide multi-language design functionality.

45. A system for multi-language code design comprising:

a design tool discovery component which discovers at least two protocol-compliant design tool components; and

a design tool integration component which integrates each of said design tool components to provide multi-language design functionality.